(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 14 October 2004 (14.10.2004)

PCT

(10) International Publication Number WO 2004/087731 A1

(51) International Patent Classification7: C07J 3/00, 31/00

(21) International Application Number:

PCT/DK2004/000242

(22) International Filing Date: 2 April 2004 (02.04.2004)

(25) Filing Language: English

(26) Publication Language:

English

(30) Priority Data:

03007756.4 4 April 2003 (04.04.2003) EP 2004 00449 19 March 2004 (19.03.2004) DK

(71) Applicant (for all designated States except US): AL-PHARMA APS [DK/DK]; 11 Dalslandsgade, DK-2300 Copenhagen S (DK).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): LOEVLI, Trond [NO/NO]; Welhavens Vei 2, NO-1412 Sofiemyr (NO). NYGAARD, Anne-Mette [NO/NO]; Harald Haarfagres Gates 10B, NO-0363 Oslo (NO). REITSTOEN, Bjoern [NO/NO]; Ekclyvcien 4B, NO-0374 Oslo (NO). FIVEL-STAD, Magny [NO/NO]; Sognsveien 131B, NO-0855 Oslo (NO).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): ΛE , ΛG , ΛL , ΛM ,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GII, GM, IIR, IIU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PII, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR THE PREPARATION OF STEROIDAL CARBOTHIOIC ACID DERIVATIVES AND INTERMEDIATES

(57) Abstract: A method for the conversion of steroidal 17β-carboxylic acids to c carbothioic acid and esters thereof such as fluticasone propionate.

0 2004/087731 A1 IIII

ನ

PCT/DK2004/000242 A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C07J3/00 C07J C07J31/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) C07J IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, CHEM ABS Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. χ WO 97/24365 A (GLAXO GROUP LTD ; BIGGADIKE 1-22 KEITH (GB); PROCOPIOU PANAYIOTIS ALEXAN). 10 July 1997 (1997-07-10) page 11, line 25 - page 13, line 6 X WO 02/08243 A (COOTE STEVEN JOHN ; ROBINSON 1 - 16JOHN MALCOLM (GB); GLAXO GROUP LTD (GB) 31 January 2002 (2002-01-31) page 6, lines 1-15 X GB 2 088 877 A (GLAXO GROUP LTD) 1-22 16 June 1982 (1982-06-16) page 3, line 51 - page 5, line 29 X US 4 578 221 A (BAIN BRIAN M ET AL) 1 - 1625 March 1986 (1986-03-25) examples 1-13 claims 1,7 Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the *A* document defining the general state of the art which is not considered to be of particular relevance invention 'E' earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled 'O' document referring to an oral disclosure, use, exhibition or document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the International search Date of mailing of the international search report

Fax: (+31-70) 340-3016 Form PCT/ISA/210 (second sheet) (January 2004)

Name and mailing address of the ISA

3 August 2004

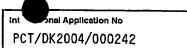
European Patent Office, P.B. 5818 Patentiaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,

18/08/2004

Samsam Bakhtiary, M

Authorized officer





Category *	Citation of document, with indication, where appropriate, of the relevant passages	Polyment to alche Ma
	manufacturi, imanufappropriatie, or the relevant passages	Relevant to claim No.
(WO 02/12265 A (COOTE STEVEN JOHN; BIGGADIKE KEITH (GB); GLAXO GROUP LTD (GB); NICE R) 14 February 2002 (2002-02-14) page 21, line 1 - page 22, line 25	1-16
(HAPGOOD, JANET P. ET AL: "Steroid-affinity purification of the rat liver glucocorticoid hormone receptor complex" JOURNAL OF STEROID BIOCHEMISTRY (1987), 28(6), 769-77 CODEN: JSTBBK; ISSN: 0022-4731, 1987, XP001183044 page 770, right-hand column, paragraph 2	17,18
X	HOYTE, R. M. ET AL: "Synthesis and evaluation of potential radioligands for the progesterone receptor" JOURNAL OF MEDICINAL CHEMISTRY (1985), 28(11), 1695-9 CODEN: JMCMAR; ISSN: 0022-2623, 1985, XP001182782 page 1696, right-hand column; compound 15	17,18
X	MACINDOE, JOHN H. ET AL: "Comparative studies of 5.alphareductase inhibitors within MCF-7 human breast cancer cells" JOURNAL OF STEROID BIOCHEMISTRY (1984), 20(5), 1095-100 CODEN: JSTBBK; ISSN: 0022-4731, 1984, XP001182781 page 1096, left-hand column, last paragraph - page 1096, right-hand column, line 11	17,18
X	FORMSTECHER, P. ET AL: "Synthesis of steroidal 17.betacarboxamide derivatives" STEROIDS (1980), 35(3), 265-72 CODEN: STEDAM; ISSN: 0039-128X, 1980, XP001182780 page 266 formula III	17-19
X	KOLBE, ADELHEID ET AL: "Syntheses of dexamethasone conjugates of the phytohormones gibberellin A3 and 24-epicastasterone" COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS (2002), 67(1), 103-114 CODEN: CCCCAK; ISSN: 0010-0765, 2002, XP001194682 page 104; compound 3	17–19



Int(Inal Application No PCT/DK2004/000242

	on) DOCUMENTS CONSIDERED TO BE RELEVANT	·
ategory ° (Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
(HEUBNER, ARNULF ET AL: "Application of liquid-liquid partition chromatography in the simultaneous purification of sex-hormone-binding globulin and corticosteroid-binding globulin" JOURNAL OF CHROMATOGRAPHY (1987), 397, 419-34 CODEN: JOCRAM; ISSN: 0021-9673, 1987, XP001194688 page 420, paragraph 4	17-19
K	PHILLIPPS G H ET AL: "SYNTHESIS AND STRUCTURE-ACTIVITY RELATIONSHIPS IN A SERIES OF ANTIINFLAMMATORY CORTICOSTEROID ANALOGUES, HALOMETHYL ANDROSTANE-17BETA-CARBOTHIOATES AND-17BETA-CARBOSELENOATES" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 37, no. 22, 1 October 1994 (1994-10-01), pages 3717-3729, XP002025925 ISSN: 0022-2623 cited in the application page 3718 scheme 3	1-16
(MANZ, BERNHARD ET AL: "Synthesis of biotin-labeled dexamethasone derivatives. Novel hormone-affinity probes" EUROPEAN JOURNAL OF BIOCHEMISTRY (1983), 131(2), 333-8 CODEN: EJBCAI; ISSN: 0014-2956, 1983, XP009034828 page 334; figure 1	17-19
	GOVINDAN, MANJAPRA V. ET AL: "Three-step purification of glucocorticoid receptors from rat liver" EUROPEAN JOURNAL OF BIOCHEMISTRY (1980), 108(1), 47-54 CODEN: EJBCAI; ISSN: 0014-2956, 1980, XP009034821 page 47, right-hand column, last paragraph	17-19

INTERNATIONAL SEARCH REPORT

| 11

Int(nal Application No PCT/DK2004/000242

				PCT/DK2	2004/000242
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9724365	A	10-07-1997	ATU AU BBR A CC DE E E E E E E E E E E E E E E E E E	194356 T 721865 B2 1140997 A 102625 A 9612309 A 2241728 A1 1209135 A ,B 9802074 A3 69609199 D1 69609199 T2 876392 T3 1401 B1 9800227 A 0876392 A1 2150150 T3 9724365 A1 3034564 T3 1012193 A1 9903707 A2 2947944 B2 11501675 T 983004 A 324373 A 10701 A 327629 A1 876392 T	15-07-2000 13-07-2000 28-07-1997 30-04-1999 13-07-1997 24-02-1999 11-11-1998 10-08-2000 01-03-2001 06-11-2000 26-02-2001 15-12-1998 11-11-1998 16-11-2000 10-07-1997 31-01-2001 23-01-2001 28-03-2000 13-09-1999 09-02-1999 26-08-1998 28-10-1999 21-05-2002 21-12-1998 29-12-2000 31-12-2000 10-03-1999 23-11-1998 11-08-2002 06-03-2001
WO 0208243	A	31-01-2002	AU BR CA CN CZ EP WO HU JP NO NZ US	7090601 A 0110430 A 2406963 A1 1437610 T 20023472 A3 1301526 A1 0208243 A1 0301108 A2 2004504403 T 20025054 A 522083 A 2004043974 A1	05-02-2002 08-07-2003 31-01-2002 20-08-2003 16-04-2003 31-01-2002 28-08-2003 12-02-2004 05-11-2002 25-06-2004 04-03-2004
GB 2088877	Α	16-06-1982	CY AT AT AT AT AT AU AU BE BG	1291 A 395428 B 17084 A 401521 B 34491 A 395427 B 67481 A 395429 B 203186 A 544517 B2 6729881 A 887518 A1 60700 B2	18-10-1985 28-12-1992 15-05-1992 25-09-1996 15-02-1996 28-12-1992 15-05-1992 28-12-1992 15-05-1992 06-06-1985 20-08-1981 13-08-1981 29-12-1995

INTERNATIONAL SEARCH REPORT

				PC1/DK2	2004/000242
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
GB 2088877	A		CA CA	1201114 A1 1205464 A2	25-02-1986 03-06-1986
			CH	644615 A5	15-08-1984
			CH	651307 A5	13-09-1985
			CZ	9104034 A3	16-03-1994
			DE	3105307 A1	10-12-1981
			DE	3153379 C2	19-11-1992
			DK	62381 A ,B,	16-08-1981
			ES	8207194 A1	01-12-1982
			ĒŠ	8305379 A1	01-07-1983
			ES	8402317 A1	16-04-1984
			ĒŠ	8502447 A1	01-04-1985
			ES	8600936 A1	16-02-1986
			FΙ	810444 A ,B,	16-08-1981
			FR	2477156 A1	04-09-1981
			FR	2485542 A1	31-12-1981
			GB	2137206 A ,B	03-10-1984
			HK	58385 A	16-08-1985
			ΙE	51394 B1	24-12-1986
			ĪΕ	51395 B1	24-12-1986
			ĪŤ	1170717 B	03-06-1987
			JP	1488353 C	23-03-1989
			JP	56138200 A	28-10-1981
			ĴΡ	63037120 B	22-07-1988
			KE	3526 A	07-06-1985
			KR	8500969 B1	02-07-1985
			MX	9202717 A1	30-06-1992
			MY	75785 A	31-12-1985
			NL	84649 C	01 12 1300
			NL	960029 I1	03-02-1997
			NL	8100707 A ,B,	16-09-1981
			NZ	196260 A ´´	30-11-1983
			PH	24267 A	29-05-1990
			PT	72502 A ,B	01-03-1981
			SE	452468 B	30-11-1987
			SE	8101010 A	16-08-1981
	* #* ** ** *** **		SG 	36885 G	15-11-1985
US 4578221	Α	25-03-1986	AT AT	395428 B 17084 A	28-12-1992 15-05-1992
			Α̈́Τ	401521 B	25-09-1996
			ΑŤ	34491 A	15-02-1996
			ΑŤ	395427 B	28-12-1992
•			ΑΤ	67481 A	15-05-1992
			ΑŤ	395429 B	28-12-1992
			ΑŤ	203186 A	15-05-1992
			ΑÜ	544517 B2	06-06-1985
			AU	6729881 A	20-08-1981
			BG	60700 B2	29-12-1995
			CH	644615 A5	15-08-1984
			CH	651307 A5	13-09-1985
			CZ	9104034 A3	16-03-1994
			DE	3105307 A1	10-12-1981
			DE	3153379 C2	19-11-1992
			DK	62381 A ,B,	16-08-1981
			ES	8207194 A1	01-12-1982
			ES	8305379 A1	01-07-1983
			ES ES	8305379 A1 8402317 A1	01-07-1983 16-04-1984



Int Phal Application No
PCT/DK2004/000242

· 			PC1/DK2	004/000242
Patent document clted in search report	Publication date		Patent family member(s)	Publication date
US 4578221	A .	ESSIRRBKEETEKKXYNLLLZTEEGKSSUU	8502447 A1 8600936 A1 810444 A ,B, 2477156 A1 2485542 A1 2137206 A ,B 58385 A 51394 B1 51395 B1 1170717 B 3526 A 8500969 B1 9202717 A1 75785 A 84649 C 960029 I1 8100707 A ,B, 196260 A 72502 A ,B 452468 B 8101010 A 36885 G 403491 A3 2794508 A 4650610 A	01-04-1985 16-02-1986 16-08-1981 04-09-1981 31-12-1981 03-10-1984 16-08-1985 24-12-1986 24-12-1986 03-06-1987 07-06-1985 02-07-1985 30-06-1992 31-12-1985 03-02-1997 16-09-1981 30-11-1983 01-03-1981 30-11-1987 16-08-1981 15-11-1985 07-02-1996 04-06-1957 17-03-1987
WO 0212265	A 14-02-2002	AU BG BR A A N N Z P P O O U U P P A O O K S S S S S S S S S S S S S S S S S	7576001 A 7649701 A 107518 A 0113039 A 0113042 A 2417825 A1 2417826 A1 1468252 T 1468253 T 20030353 A3 1305329 A1 1305330 A1 0212265 A1 0212266 A1 0303084 A2 0303354 A2 2004505989 T 2004505990 T 25899 A1 20030550 A 1422003 A3 2002177581 A1 2003073676 A1 2002173496 A1 2003153542 A1 2003153542 A1 2003153542 A1 2003199485 A1 2003092690 A1	18-02-2002 18-02-2002 30-09-2003 15-07-2003 08-07-2003 14-02-2002 14-01-2004 14-01-2004 14-05-2003 02-05-2003 14-02-2002 14-02-2002 14-02-2002 29-12-2003 28-01-2004 26-02-2004 26-02-2004 01-10-2003 04-04-2003 04-04-2003 03-06-2003 28-11-2002 17-04-2003 21-11-2002 14-08-2003 07-11-2002 12-06-2003 12-02-2004 23-10-2003 06-03-2003 15-05-2003

INTERNATIONAL SEARCH REPORT

In lens Application No PCT/DK2004/000242

		PCT/DK	2004/000242
A. CLASS	FICATION OF SUBJECT MATTER C07J3/00 C07J31/00		
According t	o International Patant Classification (IPC) or to both national classific	ration and IDC	
	SEARCHED	and it is	
Minimum di IPC 7	ocumentation searched (classification system followed by classificat	ion symbols)	
"	6070		
Documenta	tion searched other than minimum documentation to the extent that	pilch dogirmente am inchident la the Ba	W
	The same is a second se	and the first state of the stat	DB 8687CJ6Q
Electronic d	ata base consulted during the international search (name of data be	se and Where practical county towns	need.
	ternal, WPI Data, CHEM ABS Data	or and these pressed, search terms	usecj
	Tollier, Mil Data, Olich Abb Data	•	
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the re-	evant passages	Relevant to claim No.
X	WO 97/24365 A (GLAXO GROUP LTD ;	BIGGADIKE	. 1-22
	KEITH (GB); PROCOPIOU PANAYIOTIS 10 July 1997 (1997-07-10)	ALEXAN).	
	page 11, line 25 - page 13, line	6	
X	WO 02/08243 A (COOTE STEVEN JOHN	* DODINGON	
^	JOHN MALCOLM (GB); GLAXO GROUP LT	TO (GB)	1-16
	31 January 2002 (2002-01-31)		
	page 6, lines 1-15		
X	GB 2 088 877 A (GLAXO GROUP LTD)		1-22
	16 June 1982 (1982-06-16) page 3, line 51 - page 5, line 29)	
, l			
X	US 4 578 221 A (BAIN BRIAN M ET 25 March 1986 (1986-03-25)	AL)	1–16
	examples 1-13		
	claims 1,7		
		-/ 	
Y Furth	er documents are listed in the continuation of box C.	V Beland to Name and the Name	(adl
<u> </u>		X Patent family members are lie	LEGIN BUNGS.
	egories of clied documents;	"I" later document published after the or priority date and not in conflict	international filing date
conside	nt defining the general state of the art which is not ened to be of particular relevance	cited to understand the principle invention	or theory underlying the
filing da	ocument but published on or after the International ate at which may throw doubts on priority claim(s) or	"X" document of particular relevance; cannot be considered novel or ca	nnot be considered to
WALCH D	it which may unow occurs on priority claim(s) or s chied to establish the publication date of another or other special reason (as specified)	involve an inventive step when the "Y" document of particular playance:	e document is taken alone
	nt referring to an oral disclosure, use, exhibition or	cannot be considered to involve a document is combined with one of ments, such combination being of	if mote other such docu⊸
'P' docume	nt published prior to the international filing date but	in the art. *&" document member of the same pa	,
	ctual completion of the international search	Date of mailing of the international	
3	August 2004	18/08/2004	
Name and m	alling address of the ISA	Authorized officer	
	European Palent Office, P.B. 5818 Palentiaan 2 NL - 2280 HV Rijawijk		
	Tal. (+31-70) 340-2040, Tx. 31 661 epo rd, Fax: (+31-70) 340-3016	Samsam Bakhtiar	y, M



tm = onal Application No PCT/DK2004/000242

0 (0 45-11	INTERNATIONAL SEARCH REPORT	PCT/DK2004/000242
Category •	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/12265 A (COOTE STEVEN JOHN; BIGGADIKE KEITH (GB); GLAXO GROUP LTD (GB); NICE R) 14 February 2002 (2002-02-14) page 21, line 1 - page 22, line 25	1-16
X	HAPGOOD, JANET P. ET AL: "Steroid-affinity purification of the rat liver glucocorticoid hormone receptor complex" JOURNAL OF STEROID BIOCHEMISTRY (1987), 28(6), 769-77 CODEN: JSTBBK; ISSN: 0022-4731, 1987, XP001183044 page 770, right-hand column, paragraph 2	17,18
X	HOYTE, R. M. ET AL: "Synthesis and evaluation of potential radioligands for the progesterone receptor" JOURNAL OF MEDICINAL CHEMISTRY (1985), 28(11), 1695-9 CODEN: JMCMAR; ISSN: 0022-2623, 1985, XP001182782 page 1696, right-hand column; compound 15	17,18
X	MACINDOE, JOHN H. ET AL: "Comparative studies of 5.alphareductase inhibitors within MCF-7 human breast cancer cells" JOURNAL OF STEROID BIOCHEMISTRY (1984), 20(5), 1095-100 CODEN: JSTBBK; ISSN: 0022-4731, 1984, XP001182781 page 1096, left-hand column, last paragraph - page 1096, right-hand column, line 11	17,18
X	FORMSTECHER, P. ET AL: "Synthesis of steroidal 17.betacarboxamide derivatives" STEROIDS (1980), 35(3), 265-72 CODEN: STEDAM; ISSN: 0039-128X, 1980, XP001182780 page 266 formula III	17–19
X	KOLBE, ADELHEID ET AL: "Syntheses of dexamethasone conjugates of the phytohormones gibberellin A3 and 24-epicastasterone" COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS (2002), 67(1), 103-114 CODEN: CCCCAK; ISSN: 0010-0765, 2002, XP001194682 page 104; compound 3	17-19



Int(mal Application No PCT/DK2004/000242

	PCT/DK2004/000242
	·
Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
HEUBNER, ARNULF ET AL: "Application of liquid-liquid partition chromatography in the simultaneous purification of sex-hormone-binding globulin and corticosteroid-binding globulin" JOURNAL OF CHROMATOGRAPHY (1987), 397, 419-34 CODEN: JOCRAM; ISSN: 0021-9673, 1987, XP001194688 page 420, paragraph 4	17-19
PHILLIPPS G H ET AL: "SYNTHESIS AND STRUCTURE-ACTIVITY RELATIONSHIPS IN A SERIES OF ANTIINFLAMMATORY CORTICOSTEROID ANALOGUES, HALOMETHYL ANDROSTANE-17BETA-CARBOTHIOATES AND-17BETA-CARBOSELENOATES" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 37, no. 22, 1 October 1994 (1994-10-01), pages 3717-3729, XP002025925 ISSN: 0022-2623 cited in the application page 3718 scheme 3	1–16
MANZ, BERNHARD ET AL: "Synthesis of biotin-labeled dexamethasone derivatives. Novel hormone-affinity probes" EUROPEAN JOURNAL OF BIOCHEMISTRY (1983), 131(2), 333-8 CODEN: EJBCAI; ISSN: 0014-2956, 1983, XP009034828 page 334; figure 1	17-19
GOVINDAN, MANJAPRA V. ET AL: "Three-step purification of glucocorticoid receptors from rat liver" EUROPEAN JOURNAL OF BIOCHEMISTRY (1980), 108(1), 47-54 CODEN: EJBCAI; ISSN: 0014-2956, 1980, XP009034821 page 47, right-hand column, last paragraph	17-19
	liquid-liquid partition chromatography in the simultaneous purification of sex-hormone-binding globulin and corticosteroid-binding globulin" JOURNAL OF CHROMATOGRAPHY (1987), 397, 419-34 CODEN: JOCRAM; ISSN: 0021-9673, 1987, XP001194688 page 420, paragraph 4 PHILLIPPS G H ET AL: "SYNTHESIS AND STRUCTURE-ACTIVITY RELATIONSHIPS IN A SERIES OF ANTIINFLAMMATORY CORTICOSTEROID ANALOGUES, HALOMETHYL ANDROSTANE-17BETA-CARBOTHIOATES AND-17BETA-CARBOTHIOATES" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 37, no. 22, 1 October 1994 (1994-10-01), pages 3717-3729, XP002025925 ISSN: 0022-2623 cited in the application page 3718 scheme 3 MANZ, BERNHARD ET AL: "Synthesis of biotin-labeled dexamethasone derivatives. Novel hormone-affinity probes" EUROPEAN JOURNAL OF BIOCHEMISTRY (1983), 131(2), 333-8 CODEN: EJBCAI; ISSN: 0014-2956, 1983, XP009034828 page 334; figure 1 GOVINDAN, MANJAPRA V. ET AL: "Three-step purification of glucocorticoid receptors from rat liver" EUROPEAN JOURNAL OF BIOCHEMISTRY (1980), 108(1), 47-54 CODEN: EJBCAI; ISSN: 0014-2956, 1980, XP009034821

Form PCT/ISA/210 (continuation of second sheet) (January 2004)



Information on patent family members

Inti mai Application No PCT/DK2004/000242

			PCT/DK2004/000242		
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9724365	A	10-07-1997	AT	194356 T	15-07-2000
		- • •	ΑÜ	721865 B2	13-07-2000
			ΑŬ	1140997 A	28-07-1997
			BG	102625 A	30-04-1999
			BR	9612309 A	13-07-1999
			CA	2241728 A1	10-07-1997
			CN	1209135 A ,B	24-02-1999
			ČZ	9802074 A3	11-11-1998
			DĒ	69609199 D1	10-08-2000
			DE	69609199 T2	01-03-2001
			DK	876392 T3	
			EA		06-11-2000
			EE	1401 B1	26-02-2001
				9800227 A	15-12-1998
			EP	0876392 A1	11-11-1998
			ES	2150150 T3	16-11-2000
			MO	9724365 A1	10-07-1997
			GR	3034564 T3	31-01-2001
			HK	1012193 A1	23-01-2001
			ΗU	9903707 A2	28-03-2000
			JΡ	2947944 B2	13-09-1999
			JΡ	11501675 T	09-02-1999
			NO	983004 A	26-08-1998
			NZ	324373 A	28-10-1999
			OA	10701 A	21-05-2002
			PL	327629 A1	21-12-1998
			PΤ	876392 T	29-12-2000
			SÏ	876392 T1	
			SK	89198 A3	31-12-2000
			TR	9801247 T2	10-03-1999
					23-11-1998
			TW	498072 B	11-08-2002
		·	U\$ 	6197761 B1	06-03-2001
WO 0208243	A	31-01-2002	AU	7090601 A	05-02-2002
,			BR	0110430 A	08-07-2003
•			CA	2406963 A1	31-01-2002
			CN	1437610 T	20-08-2003
			CZ	20023472 A3	16-04-2003
			ĒΡ	1301526 A1	16-04-2003
			MO.	0208243 A1	31-01-2002
			ĤŬ	0301108 A2	28-08-2003
			JP	2004504403 T	12-02-2004
			NO	20025054 A	
			NZ		05-11-2002
			US	522083 A	25-06-2004
				2004043974 A1	04-03-2004
GB 2088877	A	16-06-1982	CY	1291 A	18-10-1985
			AT	395428 B	28-12-1992
			AT	17084 A	15-05-1992
			AT	401521 B	25-09-1996
			ΑT	34491 A	15-02-1996
			ΑT	395427 B	28-12-1992
			AT	67481 A	15-05-1992
				395429 B	28-12-1992
			ΑI		<u> </u>
			AT AT		15_05_1002
			AT	203186 A	15-05-1992
			AT Au	203186 A 544517 B2	06-06-1985
			TA UA UA	203186 A 544517 B2 6729881 A	06-06-1985 20-08 - 1981
			AT Au	203186 A 544517 B2	06-06-1985



Information on patent family members

Int inal Application No PCT/DK2004/000242

				PCT/DK2004/000242		
Patent document dted in search report		Publication date		Patent family member(s)	Publication date	
GB 2088877	A		CA	1201114 A1	25-02-1986	
			CA	1205464 A2	03-06-1986	
			CH	644615 A5	15-08-1984	
			CH	651307 A5	13-09-1985	
			CZ	9104034 A3	16-03-1994	
			DE	3105307 A1	10-12-1981	
			DE	3153379 C2	19-11-1992	
			DK	62381 A ,B,	16-08-1981	
			ES	8207194 A1	01-12-1982	
		•	ES	8305379 A1	01-12-1982	
			ES	8402317 A1	16-04-1984	
			ES	8502447 A1	01-04-1985	
			ES	8600936 A1	16-02-1986	
			FI	810444 A ,B,	16-02-1980	
			FŘ	2477156 A1	04-09-1981	
			FR	2485542 A1	31-12-1981	
			GB	2137206 A ,B	03-10-1984	
			HK	58385 A	16-08-1985	
•			IE	51394 B1		
			ΙΕ	51394 B1 51395 B1	24-12-1986 24-12-1986	
			ĬŤ	1170717 B		
			JP	1488353 C	03-06-1987	
					23-03-1989	
			JP	56138200 A	28-10-1981	
			JP	63037120 B	22-07-1988	
			KE	3526 A	07-06-1985	
			KR	8500969 B1	02-07-1985	
			MX	9202717 A1	30-06-1992	
			MY	75785 A	31-12-1985	
			NL	84649 C	00 00 1007	
			NL	960029 I1	03-02-1997	
			NL	8100707 A ,B,	16-09-1981	
			NZ	196260 A	30-11-1983	
			PH	24267 A	29-05-1990	
	-		PT	72502 A ,B	01-03-1981	
			SE	452468 B	30-11-1987	
			SE	8101010 A	16-08-1981	
		•	SG_	36885 G 	15-11-1985	
US 4578221	A	25-03-1986	AT	395428 B	28-12-1992	
			AT AT	17084 A	15-05-1992	
				401521 B	25-09-1996 15-02-1006	
			AT AT	34491 A	15-02-1996	
			AT AT	395427 B	28-12-1992 15 05 1003	
			AT AT	67481 A	15-05-1992	
			AT AT	395429 B	28-12-1992 15-05-1002	
			AT	203186 A	15-05-1992	
			AU	544517 B2	06-06-1985	
			AU	6729881 A	20-08-1981	
			BG CU	60700 B2	29-12-1995	
			CH	644615 A5	15-08-1984	
			CH	651307 A5	13-09-1985	
			CZ	9104034 A3	16-03-1994	
			DE	3105307 A1	10-12-1981	
			DE	3153379 C2	19-11-1992	
					16-08-1981	
			DK	62381 A ,B,		
			ES	8207194 A1	01-12-1982	



tm nat Application No PCT/DK2004/000242

Patent document	Patent desument Divisional		Patent family Publication		
cited in search report		Publication date		member(s)	Publication date
US 4578221	A		EŞ	8502447 A1	01-04-1985
			EŞ	8600936 A1	16-02-1986
			FΙ	810444 A ,B,	16-08-1981
			FR	2477156 A1 ´	04-09-1981
			FR	2485542 A1	31-12-1981
			GB	2137206 A ,B	03-10-1984
			HK	58385 A	16-08-1985
			ΙE	51394 B1	24-12-1986
			ΙE	51395 B1	24-12-1986
			ΙT	1170717 B	03-06-1987
			ΚE	3526 A	07-06-1985
			KR	8500969 B1	02-07-1985
			MX	9202717 A1	30-06-1992
			MY	75785 A	31-12-1985
			NL	84649 C	31 1L 1363
			NL	960029 I1	03-02-1997
			NL	8100707 A ,B,	16-09-1981
			NZ	196260 A	30-11-1983
			PT	72502 A ,B	
			SE		01-03-1981
			SE	452468 B	30-11-1987
			SG	8101010 A	16-08-1981
			SK	36885 G	15-11-1985
			US	403491 A3	07-02-1996
			US	2794508 A	04-06-1957
				4650610 A	17-03-1987
WO 0212265	A	14-02-2002	AU	7576001 A	18-02-2002
			AU	7649701 A	18-02-2002
			BG	107518 A	30-09-2003
'			BR	0113039 A	15-07-2003
			BR	0113042 A	08-07-2003
			CA	2417825 A1	14-02-2002
			CA	2417826 A1	14-02-2002
			CN	1468252 T	14-01-2004
			CN	1468253 T	14-01-2004
			CZ	20030353 A3	14-05-2003
		,	EP	1305329 A1	02-05-2003
			EP	1305330 A1	02-05-2003
			MO	0212265 Al	14-02-2002
			MO	0212266 A1	14-02-2002
			HU	0303084 A2	29-12-2003
			HU	0303354 A2	28-01-2004
			JP	2004505989 T	26-02-2004
			JP	2004505990 T	26-02-2004
			MA	25899 A1	01-10-2003
			NO	20030549 A	04-02-2003
			NO	20030550 A	04-04-2003
			SK	1422003 A3	03-06-2003
			US	2002177581 A1	28-11-2002
			ÜS	2003073676 A1	17-04-2003
			ÜS	2002173496 A1	21-11-2002
			ÜS	2003153542 A1	14-08-2003
			U\$	2002165211 A1	07-11-2002
			US	2002105211 AI 2003109511 AI	
			US		12-06-2003
			US	2004028615 A1	12-02-2004
			US	2003199485 A1	23-10-2003
			นจ	2003045512 A1	06-03-2003
			US	2003092690 A1	15-05-2003